Growth in the Southeast: Trends and Choices

Population and economic growth in the Southeastern United States over the last decade has generated large-scale land consumption and exacerbated traffic congestion, according to this article. Air pollution has risen, affecting human health and nearby forest ecosystems. Water quality and quantity has declined, and the region is losing a tremendous amount of biodiversity and habitat. The article reviews the fiscal and economic costs of sprawl, as well as its' impacts on equity within urban areas. Throughout the region, voters are demonstrating their support for smart growth and community livability measures. The article later reviews opportunities for land use and transportation reform in the Southeast, as well as barriers that prevent the adoption of more focused policies.

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Introduction

The Southeast is growing at a phenomenal rate. Although this growth has brought many benefits to the region, such as more jobs and higher incomes, the explosive, low-density land use development that is transforming the Southeast is linked to an increasing array of environmental, health, economic, and social problems. Public awareness and concern with the problems relating to sprawl have increased, creating pressure for change and significant opportunities to promote new approaches that can capture the benefits of growth while reducing the accompanying costs.

This article will examine some of the key trends, issues, and opportunities for reform in seven southeastern states – Alabama, Georgia, Florida, North Carolina, South Carolina, Tennessee, and Virginia.[1]

General Growth Trends

Population Growth

The Southeast is experiencing tremendous population growth. Between 1990 and 2000, population in the region increased by over 8.8 million, an almost 20 percent increase that far outpaced the 13.1 percent increase nationwide during the past decade. Five of the 15 fastest growing states were in the Southeast (Georgia, Florida, North Carolina, South Carolina, and Tennessee).[2]

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	Census Population		*Change, 1990 to 2000*	
	April 1, 1990	**April 1, 2000**	**Number**	**Percent**
Georgia	6,478,216	8,186,453	1,708,237	26.4
Florida	12,937,926	15,982,378	3,044,452	23.5
North Carolina	6,628,637	8,049,313	1,420,676	21.4
Tennessee	4,877,185	5,689,283	812,098	16.7
South Carolina	3,486,703	4,012,012	525,309	15.1
Virginia	6,187,358	7,078,515	891,157	14.4
Alabama	4,040,587	4,447,100	406,513	10.1
Region	**44,636,612**	**53,445,054**	**8,808,442**	**19.7**

Table 1. *Population growth in the Southeast United States.*

For at least the next two decades, population increases in the Southeast are projected to far outpace the national average.

Economic Growth

The Southeast has also experienced dramatic economic growth. Although the economy recently has weakened nationwide, the Southeast has seen a significant boost in jobs and personal income in recent decades, and unemployment has tended to be below the national average.[3] Atlanta, the region's largest metropolitan area, added over 670,000 new jobs and increased per capita income by over 60 percent during the past decade.[4]

Another significant trend is the fact that new jobs are being created most rapidly in suburban areas throughout the region. This trend has a major impact on urban form and on the ability of job seekers in urban neighborhoods to find employment.

Although jobs are increasing at a faster pace in suburban areas, the majority of jobs are still located relatively near the center city in most metropolitan areas in the Southeast. Atlanta and Tampa, however, are two cities showing a high degree of "job sprawl," with most jobs located over ten miles from the central business district.[5] As jobs become less centrally located, more land is consumed and auto use becomes a necessity as transit, walking, and bicycling become impractical.

Land Development Patterns

Although population and economic trends

State	Change in Total Land Developed 1982-1992 (1000s of Acres)	Change in Total Land Developed 1992-1997 (1000s of Acres)
Georgia	851.9	738.4
Florida	825.2	1088.2
North Carolina	506.6	933.1
Tennessee	401.9	464.0
South Carolina	362.0	386.4
Virginia	343.5	441.0
Alabama	315.3	320.4
Region	**3606.4**	**4371.5**

Table 2. *Land development patterns in the Southeast United States.*

affect growth and development, the problem is less that the Southeast is growing than how it is growing. Scattered, highly land-consumptive development patterns are typical in every state in the region.

The amount of land being developed in the Southeast is staggering. Between 1992 and 1997, over 3.6 million acres were developed in the region,[6] an average of over 720,000 acres per year, or almost 2,000 acres per day. During the preceding ten years, over 4.37 million additional acres were developed.

The Southeast is the most rapidly developing region of the country. Of the ten states where the most land was developed between 1992 and 1997, half are in the Southeast. The only states in this region not in the top ten – Virginia and Alabama – ranked 11th and 13th nationally in total land consumption.

Moreover, the rate of land development is accelerating in every state in the region.

This accelerating growth has caused a massive loss of precious resources, such as productive farmland and forest land, wetlands, and wildlife habitat. Over 20 percent of the land developed between 1992 and 1997 in Georgia and South Carolina was considered to be prime farmland, and over 30 percent of the land developed in Alabama, North Carolina, Tennessee, and Virginia during this period was prime farmland.

"Top Ten" States - Total Acres of Land Developed 1992-1997

1	Texas
2	Georgia
3	Florida
4	California
5	Pennsylvania
6	North Carolina
7	Tennessee
8	Ohio
9	Michigan
10	South Carolina

Table 3. *Top ten states by acres of land developed, 1992-1997.*

This phenomenal rate of land conversion is far outpacing even the rapid population growth of the region, and development density is decreasing as the Southeast sprawls away from existing communities.[7] In the Charleston area, for example,

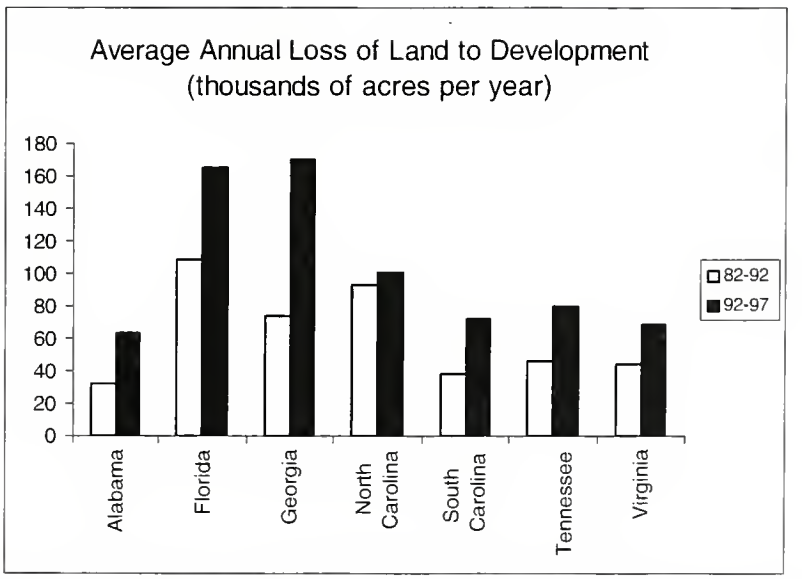

Figure 1. *Average annual loss of land to development (thousands of acres per year).*

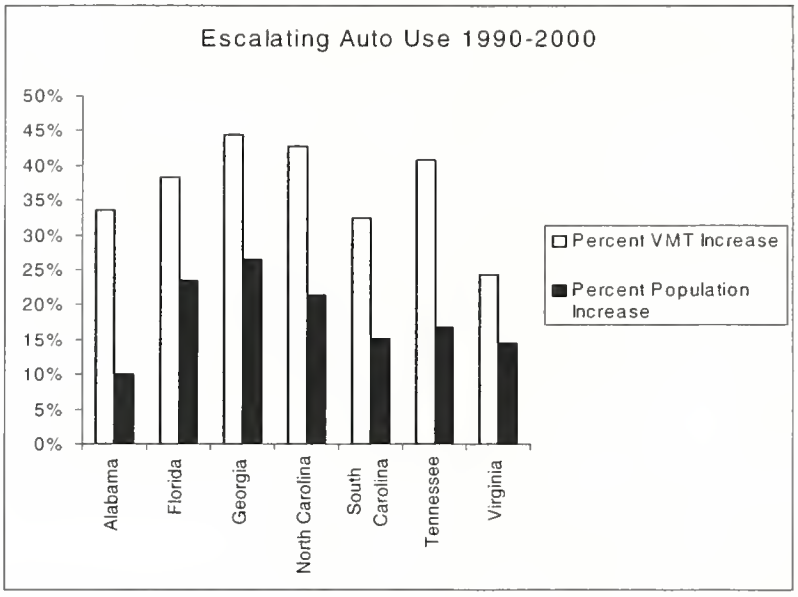

Figure 2. *Increase in population and vehicle miles traveled (VMT), 1990-2000.*

between 1973 and 1994 the population increased by 41 percent while the urban area expanded by 255 percent.[8] A recent national report found Atlanta to be the most sprawling of 13 major cities studied, with the lowest density of any major city.[9]

Transportation

As residences, jobs, and activities spread further apart, automobile use escalates. In 2000, people in the Southeast drove over 589 billion miles; an average of over 1.6 billion miles per day.[10]

The number of miles people drive is increasing dramatically in the Southeast, far outstripping growth in both population and the number of drivers.

As a result, the Southeast has the highest driving rates in the country. Three of the five largest metro areas with the highest amount of average driving per person in the United States are in the region, as are four of the five middle-sized metro areas.[11]

Traffic congestion and commutes are increasing rapidly as well. Atlanta has now become the second most congested city in the country, and congestion there is increasing faster than in any other major city in the country.[12] The average amount of time drivers in Atlanta spent stuck in traffic more than doubled between 1992 and 1999 – from 25 to 53 hours per person per year; and in 1999 over 150 million hours were lost due to delay. Drivers in Washington, Miami, Nashville, and Orlando experienced annual delay of over 40 hours per person in 1999.

Congestion is rising despite aggressive road building programs in southeastern states. While new highways can provide temporary traffic relief, evidence is growing that it is not possible to build our way out of congestion. New roads actually generate more travel, both by opening new areas to development and by leading motorists to change their behavior, such as encouraging people to drive rather than use alternative means of transportation.[13]

Although recent changes to federal transportation law have increased funding available for transportation alternatives, transportation programs in the Southeast remain heavily weighted towards building and expanding roads as the solution to virtually every transportation problem. State departments of transportation and metropolitan planning organizations in most areas in the Southeast typically give little consideration

to the consequences of roads or to alternative transportation improvements, such as better road design and mass transit.

A recent report by the Surface Transportation Policy Project examined how states have spent the federal transportation funds they receive.[14] It found that three states in the Southeast (Georgia, South Carolina, and Tennessee) are "behind the times"- failing to pursue many transportation alternatives. Two states (Alabama and North Carolina) were ranked as "offering few options," and only two states (Florida and Virginia) was found to have even mixed results, and ranked as "middle of the road." No state in the region was ranked as "open to change."

Impacts of Current Trends

The land use and transportation trends transforming the Southeast have brought a host of unintended economic, health, social, and environmental consequences. Almost every community in the region has experienced some of the harm automobile-dependent, sprawling development can bring. This section outlines some of the most serious problems accompanying sprawl.

Harm to Health and the Environment

The dramatic increase in driving in the Southeast means more air pollution.[15] Motor vehicles are a major source of pollutants such as carbon monoxide and smog-causing nitrogen oxides and volatile organic compounds. Overall, although ozone levels are dropping in most areas of the country, they are rising in the Southeast.

These pollutants lead to a range of health and environmental harms, including premature death, lung tissue damage, asthma attacks, visibility impairment, and forest damage. Millions of people in the region face additional health risks from excessive air pollution. A recent report from the American Lung Association found that ten of the 25 most ozone-polluted cities and nine of the 25 most polluted counties in the country are in the Southeast.[16] The American Lung Association also gave a failing grade to the air quality of over 90 counties in the region due to ozone pollution. The impact of ozone on children's health is a source of particular concern. A recent study found that emergency room visits by children for asthma fell over 40 percent in Atlanta during the 1996 Summer Olympics when vehicle use decreased and transit

Large Metro Areas with Highest Daily Vehicle Miles of Travel Per Capita

Rank	Federal-Aid Urbanized Area	Per Capita DVMT
1	Nashville	37.6
2	Houston	36.9
3	Birmingham	34.8
4	Atlanta	33.8
5	Indianapolis	32.1

Mid-Size Metro Areas with Highest Daily Vehicle Miles of Travel Per Capita

Rank	Federal-Aid Urbanized Area	Per Capita DVMT
1	Knoxville	35.6
2	Greensboro	34.3
3	Winston-Salem	31.7
4(tie)	Durham	31.4
4(tie)	Harrisburg PA	31.4

Table 4. *Metro areas with highest per capita vehicle miles traveled (VMT).*

use rose in the region.[17]

A new report by the federal Centers for Disease Control (CDC) links sprawl to other public health problems.[18] The report found that by increasing the distances between activities, and thereby discouraging walking, sprawl increases obesity. There is again particular concern with the impact on children's health. Childhood obesity is skyrocketing, due in part to the fact that in sprawling, auto-dependent communities, children must be chauffeured almost everywhere. The CDC report also concludes that sprawl poses a significant safety risk, increasing pedestrian-auto traffic accidents.

Current land use and transportation patterns are also closely tied to numerous environmental problems. In addition to ozone pollution, motor vehicles emissions are a primary contributor to global climate change, which could have disastrous environmental and economic impacts. The average vehicle emits more than one pound of carbon dioxide per mile,[19] and total carbon dioxide emissions from transportation are increasing nationwide.[20]

Water quality and quantity problems are other serious problems associated with sprawl. Buildings, roads, and parking lots are replacing millions of acres of forests, farms, and wetlands in the Southeast that would otherwise filter water. Further, development dramatically increases the amount of impervious surfaces, which in turn can increase the volume of runoff of pollutants, increase erosion, and slow groundwater replenishment, depleting water supplies. A one-acre parking lot, for example, can create 16 times more runoff than a meadow of the same size.[21] The cumulative impacts of sprawl can be devastating. For example, the Catawba River in North Carolina and South Carolina has been identified as one of the most endangered rivers in the country due to erosion and runoff from explosive development in the Charlotte area, where approximately 40 acres of green space is developed daily.[22]

In addition, land cleared for roads and development can deposit silt in rivers and streams, and road use and maintenance can introduce pollutants such as herbicides into the water. For example, the Tennessee Department of Environment and Conservation found that sediment from the construction of the southern portion of State Route 840 – a ring road outside of Nashville currently under construction – has damaged eight streams and creeks, including sediment deposits of a foot or more in some cases.[23]

The list of environmental damage caused by the Southeast's land use and transportation patterns also includes loss of the region's tremendous biological diversity, habitat fragmentation, noise pollution, and visual blight. In short, sprawl is perhaps the single greatest threat to the region's environment.

Community Wealth and Health

Land use and transportation patterns have a variety of impacts on community involvement and connectedness. As land uses spread further and further apart and a car becomes necessary for performing many activities, children, the elderly, and disabled individuals have greater difficulty in becoming active members of the community. The time we spend commuting and stuck in traffic also reduces involvement in community activities. Moreover, studies have shown that people who live on streets with higher traffic levels know far fewer of their neighbors than do people on streets with lower traffic.[24] Further, a recent report prepared for the Community Foundation of Greater Atlanta concluded that Atlanta's "rapid growth may constrain the development of the area's social capital. As would be expected, newcomers to Atlanta report lower levels of involvement in civic activities, formal associations, charitable giving, and faith-based engagement.[25]"

Fiscal and Economic Costs

Sprawl's price tag is tremendous and it is rising, as is the threat it poses to successful long-term economic development.

There is increasing evidence, for example, that

the fiscal impact of sprawl development patterns harms many localities and burdens taxpayers.[26] Proposed developments are frequently justified on the basis of the tax revenues they will bring to a city or county. All too often, however, localities are faced with the reality that growth does not pay for itself and can lead to higher tax rates or higher debt. Although new development does bring new tax revenues, far-flung development often does not generate enough taxes to pay for the new roads, water lines, schools, and other infrastructure and services that need to be provided. At the same time, infrastructure that taxpayers have already paid for may be underused or abandoned as development spreads outward. Providing the infrastructure to serve growth can also strain state budgets. A study in South Carolina showed that directing future development to existing areas would make use of infrastructure already in place, saving the state $2.7 billion over 20 years.[27]

Current land use and transportation trends also threaten the long-term health of regional and local economies. A recent national report found that business leaders "are recognizing that quality of life directly affects economic prosperity, and that sprawl threatens quality of life in many communities.[28]" For one thing, traffic congestion and long commutes make an area a much less desirable place to live and work. Moreover, businesses and individuals are often forced to pay high prices for congestion; in 1999, congestion costs were over $2.6 billion in Atlanta and almost $1.5 billion in Miami.[29] The typical southern household spends $6,863 per year on transportation, with $6,577 going toward automobiles.[30] This outlay is second only to housing expenditures, and is more than families in the region spend on health care and food *combined*.[31]

The economic vitality of existing rural communities, small towns, urban neighborhoods – even older suburbs – also suffers under sprawl. Not only does sprawl tend to lead to increased property taxes, but it also saps the vitality of existing communities since investment, jobs, and residents are lured to outlying areas. Rural economies can further suffer as productive farmland is converted and scenic landscapes, historic areas, and recreation areas that often attract vital tourist spending are harmed or destroyed.

Equity Problems

The burdens and benefits of land use and transportation patterns are not distributed equally. As noted above, sprawl development drives up transportation costs. Lower income families, however, spend the highest percentage of their income on transportation. According to the Bureau of Labor Statistics' Consumer Expenditure Survey, households with income between $10,000 and 14,999, for example, spend $3,697 per year on transportation – a quarter to more than a third of their income (24 to 37%), on average.[32] In contrast, families with income of $30,000 to 39,999 spend an average of $6973 per year on transportation (only 17 to 23%) and upper income households earning $70,000 or more spend an average of $13,363 on transportation (a fraction of one percent up to 19%, on average).

In addition, sprawl tends to be both a symptom and a cause of economic and social polarization, helping to concentrate poverty in cities and drawing people and wealth to the suburbs. This concentration in turn leads both to the increased need for local services within cities and to the erosion of the tax base necessary to support these needs, spurring further flight of wealthier households. Myron Orfield has documented this polarization in Atlanta, as well as the similar pattern of economic decline that ultimately tends to overtake inner suburbs and satellite cities that cannot compete as wealthier residents move to newer suburbs.[33] His study also highlights inequities in infrastructure investment patterns, showing that the majority of highway spending has gone to wealthier suburban areas, helping them attract an even larger share of the region's jobs. In addition to furthering regional polarization, as infrastructure investments help to draw more jobs to outer suburbs it is increasingly difficult for low-income individuals residing in the central city to find and to reach work. This problem is exacerbated by the relative lack of investment in transportation

alternatives, and has a disproportionate impact on minorities.

Changing Public Attitudes Toward Sprawl

The mounting problems accompanying sprawl in the Southeast have led to increasing public concern about the consequences of current growth patterns. A Florida poll, for example, found that 90 percent of voters support managing or limiting growth.[34] In a North Carolina poll, almost 77 percent of respondents felt "strongly" or "somewhat strongly" that the state "should impose much stricter environmental controls on developers and construction businesses.[35]" In addition, polls in numerous areas throughout the region have identified traffic congestion as one of the most pressing issues facing localities.

The deepening concern about sprawl is accompanied by growing support for promoting smart growth and community livability measures such as preserving open space and revitalizing existing communities. In a nationwide poll conducted for Smart Growth America, 85 percent of the people surveyed supported increasing coordination among towns to plan for growth, and 76 percent supported state governments giving funding priority to maintaining schools, roads, and other services in existing communities rather than encouraging development in the countryside.[36] Further, Federal Highway Administration surveys have also shown that the public is much more likely to support expanding public transportation or building new bikeways and sidewalks than to support new highways.[37]

These opinions are increasingly evident at the ballot box. Growth issues are figuring prominently in more local races and measures in the region. In November 2000, for example, dozens of measures involving a range of issues relating to growth (such as economic development and revitalization, open space, and transportation) were on local ballots in the Southeast.[38] Most of these measures were on the ballot in Florida, Georgia, and North Carolina; most measures dealt with funds for preservation of parks and open space, and almost all of these measures passed. In addition, several measures provided funding for improving transportation choices; Atlanta, for example passed two bond measures totaling $74.5 million to improve the pedestrian and transit environment.

Opportunities for Reform

Sprawl is not inevitable. A host of public subsidies, regulations, and decisions typically make it cheaper and easier to develop on the fringes of existing communities. For example, a primary factor fueling explosive growth in the Southeast has been the public investment in infrastructure, such as roads, and water and sewer lines; as long as taxpayers cover these costs, there is little incentive to build where infrastructure already exists. In addition, planning and zoning policies

State	Number of Land Trusts	Total Acres Protected
Alabama	4	33,516
Florida	23	64,456
Georgia	17	36,864
North Carolina	26	112,141
South Carolina	18	97,573
Tennessee	15	43,734
Virginia	17	236,160
Region	**120**	**624,454**

Table 5. Land trusts and acres protected by state.

that require large lots and the geographic separation of commercial and residential uses encourage scattered development and driving.

There are ample opportunities for reform. Although most of the Southeast is still in the early stages of addressing sprawl-related problems, and no state or locality has adopted a comprehensive set of policy reforms to promote smarter growth, there have been significant accomplishments throughout much of the region.

It is beyond the scope of this article to provide a comprehensive inventory of the many innovative tools and strategies states and communities are using to better guide growth and promote more sustainable transportation.[39] This section provides an overview of some of the key recent accomplishments in the Southeast, which highlight some of the more promising strategies to promote smarter growth and community livability.

Land Conservation

There are a number of tools available to protect rural, natural, and historic areas from the explosive development sweeping the region. These tools include establishing parks and greenways and conserving forest, farmland, and other forms of open space – whether through acquisition, purchasing development rights, or using conservation easements to limit development that threatens public resources such as clean water and green space. For example, over 1,200 private land trusts nationwide protect more than 4.7 million acres. In the Southeast, there are120 land trusts, and they are estimated to have protected almost 625,000 acres.[40]

In addition, Florida has the nation's largest land acquisition program. Since 1990, over one million acres have been protected. In 1999, this program was extended for 10 years with an annual funding level of $300 million to acquire, protect, and restore open space, urban recreation land, and greenways. Other states in the region have recently taken action on open space funding as well. In Georgia, Governor Barnes successfully pushed for the Greenspace Trust Fund that will provide fast-growing areas $30 million in grants if they develop greenspace plans that protect 20 percent of their land.

Increasing Transportation Choices

As discussed above, transportation programs in southeastern states are heavily weighted towards building and expanding roads, virtually ignoring transit, bicycling, walking, and other transportation alternatives. This road-centered approach has been a major factor fueling sprawl in the region since new roads can largely determine the pace, location, and scale of growth, opening new areas to development and subsidizing sprawl.

Some significant reforms have begun the move toward a more balanced transportation approach that offers a variety of transportation choices, providing meaningful alternatives to having to drive everywhere. For example, Charlotte voters approved a referendum in 1998 adopting a half-cent sales tax to fund a 25-year plan that includes $1 billion in transit improvements. In Atlanta, the new 25-year long range transportation plan calls for devoting 55 percent of funds to transit, although there are substantial questions regarding whether this much funding will actually be spent on transit. In addition, although still a small percentage of transportation funding, there has been a surge in public investment in bicycle and pedestrian projects throughout the region, largely as a result of federal funding changes. The Birmingham area, for example, is implementing a $15 million comprehensive bicycle and pedestrian plan.

Building Better Communities

Efforts to revitalize existing communities and to promote more compact patterns of new development with a mixture of commercial and residential land uses are a cornerstone of smarter growth. These efforts have the potential to reduce the pressure on undeveloped lands by providing attractive alternatives for residences and

businesses, to decrease travel times and make transportation alternatives more practical by locating homes closer to jobs and other activities, and to reduce the fiscal impacts of growth by encouraging development in areas already served by roads, schools, water and sewer.[41] Current public subsidies and regulations, however, typically make it cheaper and easier for developers to build on undeveloped sites on the fringes of existing communities.

Redirecting Infrastructure Investments

One of the most promising opportunities for states and localities to guide growth is to redirect public infrastructure spending to serve existing communities and designated growth areas. For example, road funds can be reprioritized using a "fix it first" approach that devotes a larger portion of road spending to maintaining existing roads and bridges than to new construction that opens previously rural areas to development. In addition, numerous localities have designated growth areas that delineate where capital improvements and infrastructure investment will be made. The City of Virginia Beach, for example, has adopted a "Green Line" that shapes the city's capital improvement and land use planning and has resulted in the lion's share of growth occurring within the designated area.

Providing Financial Incentives

The power of the purse is also being used to provide financial incentives – such as tax credits, tax abatements, loans, and grants – to encourage rehabilitation and reuse of existing structures and properties that have already been developed. Historic preservation incentives are a common and effective tool adopted by many states and localities in the region. In North Carolina, for example, developers estimated that the majority of the projects completed under a tax credit program for rehabilitation of certain types of historic buildings would not have been undertaken without such a credit.[42] In addition, many states and localities have adopted incentives to encourage redevelopment of old industrial sites, commonly referred to as "brownfields." Florida, for instance, offers a tax credit that provides an eligible applicant up to 35 percent of the costs of a voluntary cleanup activity integral to rehabilitating a state-designated brownfields area.

Removing Regulatory Barriers

In addition to reorienting infrastructure expenditures and providing financial incentives to guide development, a number of states and localities in the Southeast have begun to review and revise regulatory provisions that inhibit more sensible growth. Planning and zoning policies, for instance, typically segregate commercial and residential uses into different geographic areas, practically requiring people to drive to conduct almost any activity. Requiring large lot sizes, large setbacks or wide street widths are some of the other measures that effectively mandate automobile-dependent, land consumptive development patterns. In most localities in the Southeast, it would be illegal to build the more compact, mixed-use development that prevailed in this region until the past few decades and characterizes many of the region's most attractive and vibrant older communities.

A growing number of states and localities throughout the Southeast have revised regulatory provisions to eliminate such barriers to more compact, traditional neighborhood development. For example, an overlay district was adopted in Port Royal, South Carolina to promote a mixture of land uses, infill development, and pedestrian-friendly street improvements. Three towns north of Charlotte – Huntersville, Davidson, and Cornelius – have overhauled their development regulations, adopting similar provisions to promote more traditional development. Although fewer steps have been taken to remove policy obstacles to smarter growth at the state level, there have been some advances. North Carolina, for example, recently adopted a pilot program that allows certain local governments to use an alternative building code designed to remove some of the hurdles current provisions pose to rehabilitating older

buildings.

Linking Transportation and Land Use

One of the greatest hurdles to more sensible growth is the frequent failure to link transportation and land use. Transportation improvements shape the location and pace of development, and land use plans and development can have a significant impact on the need for new transportation facilities and the effectiveness of transportation investments. Yet this link is frequently overlooked. For the most part, localities have been responsible for land use decisions and policies, while states have had primary responsibility for transportation decisions. The failure to link land use and transportation has contributed to sprawling development, traffic congestion, and other unintended consequences.

One of the more notable efforts to overcome these problems is the Georgia Regional Transportation Authority (GRTA), a transportation superagency that could provide a model for more sustainable transportation and smarter growth. GRTA has the potential to link transportation, land use, and air quality planning at the regional level; to provide a broader range of transportation choices; and to use transportation funding to guide growth to areas where it will not generate significant sprawl. Although it has yet to live up to its potential, GRTA was given tremendous powers by the state legislature, including the authority to veto regional transportation plans, build and operate public transportation systems, or withhold transportation funds from large development projects.

In contrast to GRTA, which was created by the state, local governments in the Charlotte-Mecklenburg County area have cooperated and committed to a regional transit and land use plan that identifies land use and community design characteristics and transportation improvements needed to address growth pressures in the area. Among other things, this plan outlines how local governments will revise their zoning ordinances to guide development to agreed upon transportation corridors and centers.

Conclusions

There are substantial opportunities to promote more efficient and more sustainable growth in the Southeast. Many steps in recent years have begun to take advantage of these opportunities. There are, however, significant barriers to adopting and implementing more sensible tools and strategies for guiding growth. These barriers include shorter-term hurdles such as budget shortfalls resulting from the recent economic downturn, as well as more intractable barriers such as transportation agencies that are often opposed to change, and politically powerful special interests that profit from current policies favoring sprawl development and road construction.

Despite these hurdles, the substantial economic, health, environmental, and social costs of current growth trends are fueling public concern and calls for change. States and localities throughout the Southeast must make critical choices about how they will grow. Policies that can capture the benefits of growth while minimizing the attendant costs must be adopted if the region is to enjoy continued prosperity, vibrant and healthy communities, abundant natural resources, and a strong quality of life.

NOTES

[1] For further discussion of the trends shaping the Southeast and new approaches to development, see Southern Environmental Law Center and Environmental Law Institute, *Smart Growth in the Southeast: New Approaches to Guiding Development* (1999)(available at www.southernenvironment.org). For a more detailed discussion of smart growth, see Pollard, *Smart Growth: The Promise, Politics, and Potential Pitfalls of Emerging Growth Management Strategies*, Virginia Environmental Law Journal, Volume 19, No. 3, p. 247 (2000).

[2] U.S. Census Bureau, 1990 and 2000 Census.

[3] Of course, these economic trends are not uniform. Several mainstays of the economy of a number of states in the region – such as textiles and tobacco – have declined sharply.

[4] SMARTRAQ, *Trends, Implications & Strategies for Balance Growth in the Atlanta Region* (2001)(available at http://www.smartraq.net/pdfs/synthesis.pdf).

[5] The Brookings Institution, *Job Sprawl: Employment Location in U.S. Metropolitan Areas* (2001).

[6] US Department of Agriculture, *1997 National Resources Inventory* (2000). The information in the remainder of this paragraph and in the next two paragraphs is also taken from this study.

[7] The Brookings Institution, *Who Sprawls Most? How Growth Patterns Differ Across the U.S.* (2001).

[8] Tony Bartelme, "Tri-County Growth Binge 'Not a Good Pattern,'" *Charleston Post and Courier*, September 11, 1997, pp. 1-B, 4-B.

[9] George Galster, Royce Hanson, Hal Wolman, Stephen Coleman and Jason Freihage, *Wrestling Sprawl to the Ground: Defining and Measuring an Elusive Concept* (2000)(executive summary available at http://www.fanniemaefoundation.org/programs/pdf/proc_fairgrowth_galster.pdf).

[10] Data compiled from Federal Highway Administration, *Highway Statistics 2000*, Table VM-2.

[11] Federal Highway Administration, *Highway Statistics 2000*.

[12] Texas Transportation Institute, *The 2001 Urban Mobility Report*; Kelly Simmons, "Atlanta tailgating L.A. on gridlock: We're fastest in nation at adding traffic jams," *Atlanta Journal-Constitution*, May 8, 2001, p. A-1.

[13] See, Anthony Downs, *Stuck in Traffic: Coping with Peak-Hour Traffic Congestion* (1992); Lewis M. Fulton, Robert B. Noland, Daniel J. Meszler & John V. Thomas, "A Statistical Analysis of Induced Travel Effects in the US Mid-Atlantic Region," *J. of Transp. & Statistics*, Apr. 2000, at 2; Mark Hansen and Yuanlin Huang, "Road Supply and Traffic in California Urban Areas," 31 *Transportation Research A* 205 (1997); Mark Hansen, "Do New Highways Generate Traffic?," *Access* 16, 19-20 (Fall 1995).

[14] Surface Transportation Policy Project, *Changing Direction: Federal Transportation Spending in the 1990s* (March 2000).

[15] See Lawrence Frank, Brian Stone Jr., and William Bachman, "Linking land use with household vehicle emissions in the central Puget Sound: Methodological framework and findings," *Transportation Research Part D* 5, 3: 173-96 (2000).

[16] American Lung Association, *State of the Air 2001*.

[17] Michael S. Friedman, M.D.; Kenneth E. Powell, M.D., M.P.H.; Lori Hutwagner, M.S.; LeRoy M. Graham, M.D.; W. Gerald Teague, M.D., "Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma," *J. Am. Med. Ass'n.* Vol. 285, No. 7, p. 897-905 (February 21, 2001).

[18] *Creating A Healthy Environment: The Impact of the Built Environment on Public Health* (2001). See also, Lawrence Frank and Peter Engelke, "The Built Environment and Human Activity Patterns: Exploring the Impacts of Urban Form on Public Health," 16 *Journal of Planning Literature* 202-18 (2001).

[19] Transportation Research Board, Committee for a Study on Transportation and a Sustainable Environment, *Toward a Sustainable Future: Addressing the Long-Term Effects of Motor Vehicle Transportation on Climate and Ecology*, Special Report 251, p. 79 (1997).

[20] EPA, *National Air Pollutant Emission Trends 1900-1998*, Table 8-2.

[21] Chesapeake Bay Foundation, *A Better Way to Grow: For More Livable Communities and a Healthier Chesapeake Bay*, p. 4 (1996).

[22] American Rivers, *America's Most Endangered Rivers of 2001.*

[23] Memorandum from Joey Woodard, "Summary of sediment impacts to Turnbull Creek and tributaries," TDEC, Division of Water Pollution Control, September 7, 2000.

[24] Donald Appleyard, *Livable Streets* (1981).

[25] Christopher Horne, *Social Capital in Metropolitan Atlanta: Findings from the Social Capital Benchmark Survey* (June 18, 2001), p. 14.

[26] See, American Farmland Trust, *Living on the Edge: The Costs and Risks of Scatter Development* (1998).

[27] Robert W. Burchell, et al., *South Carolina Infrastructure Study: Projections of Statewide Infrastructure Costs, Savings , and Financing Alternatives, 1995-2015.*

[28] National Association of Local Government Environmental. *Professionals, Profiles of Business Leadership on Smart Growth: New Partnerships Demonstrate the Economic Benefits of Reducing Sprawl* 13 (1999).

[29] TTI, *supra* note 13.

[30] U.S. Department of Labor, Bureau of Labor Statistics, *Consumer Expenditures in 1999*, Table 8 (May 2001)(available at http://www.bls.gov/cex/csxann99.pdf). Data is not available solely for the seven states that are the focus of this article. The Consumer Expenditure Survey defines the South to include these states plus Arkansas, Delaware, District of Columbia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, Texas, and West Virginia.

[31] *Id.*

[32] Bureau of Labor Statistics, *supra* note 31, Table 2.

[33] Myron Orfield, *Atlanta Metropolitics: A Regional Agenda for Community and Stability* (December 1998).

[34] 1000 Friends of Florida summary of a poll conducted by The Tarrance Group, Feb. 11-13, 2001 (available at http://www.1000friendsofflorida.org).

[35] *Commission on Smart Growth, Growth Management and Development: Findings and Recommendations*, 14 (Fall 2001).

[36] Smart Growth America, *Greetings from Smart Growth America* (2001)(citing study conducted by Belden, Russonello & Stewart, September 2-10, 2000).

[37] Federal Highway Administration, *Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities* (available at www.fhwa.gov/reports/movingahead.htm).

[38] See, Phyllis Myers and Robert Puentes, *Growth at the Ballot Box: Electing the Shape of Communities in November 2000* (February 2001).

[39] For a more comprehensive list of tools see, for example, Smart Growth Network, Getting to Smart Growth: 100 Policies for Implementation (2002); for further examples in the southeast see SELC and ELI, *supra* note 1.

[40] Land Trust Alliance, National Land Trust Census (2000).

[41] See EPA, *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation, and Environmental Quality* (January 2001), for discussion of many of the benefits of more compact development.

[42] North Carolina Department of Cultural Resources, State Historic Preservation Office, "The Economic Impact of the Rehabilitation Investment Tax Credit Program in North Carolina, December 31, 1999.